



CREATING 3D ENVIRONMENTS

Blender Materials

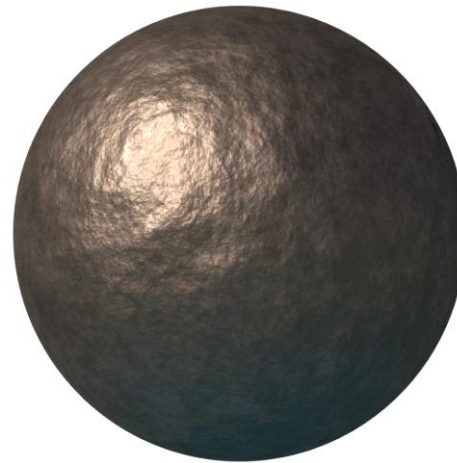
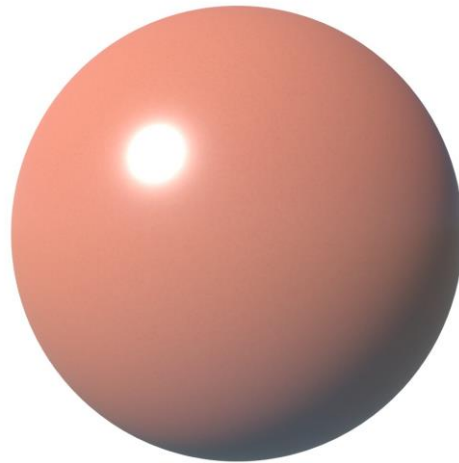
Chapter 3 – Part 3

- Materials in 3D scenes
- Different types of texture maps
- Diffuse map
- Specular map
- Roughness
- Bump map
- Normal map
- Displacement map
- Extracting the maps
- PBR workflow

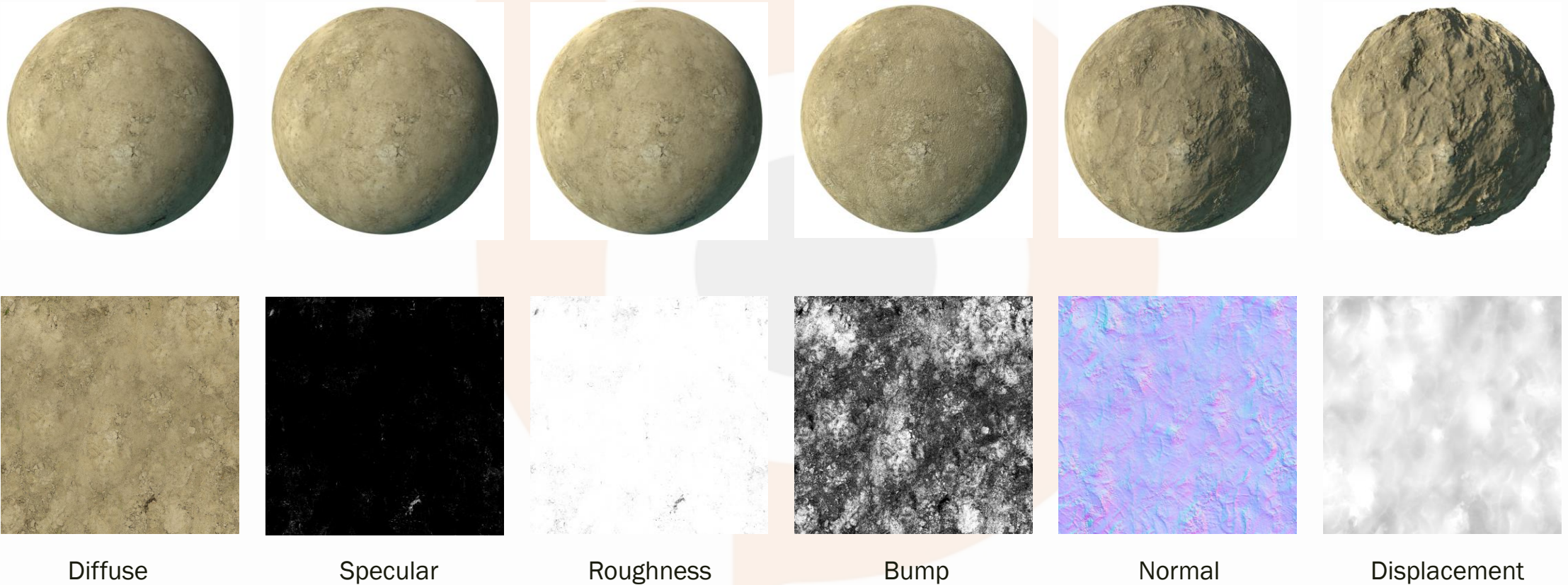


Materials in 3D scenes

- - A material defines the artistic qualities of the substance that an object is made of



Material has different types of texture maps

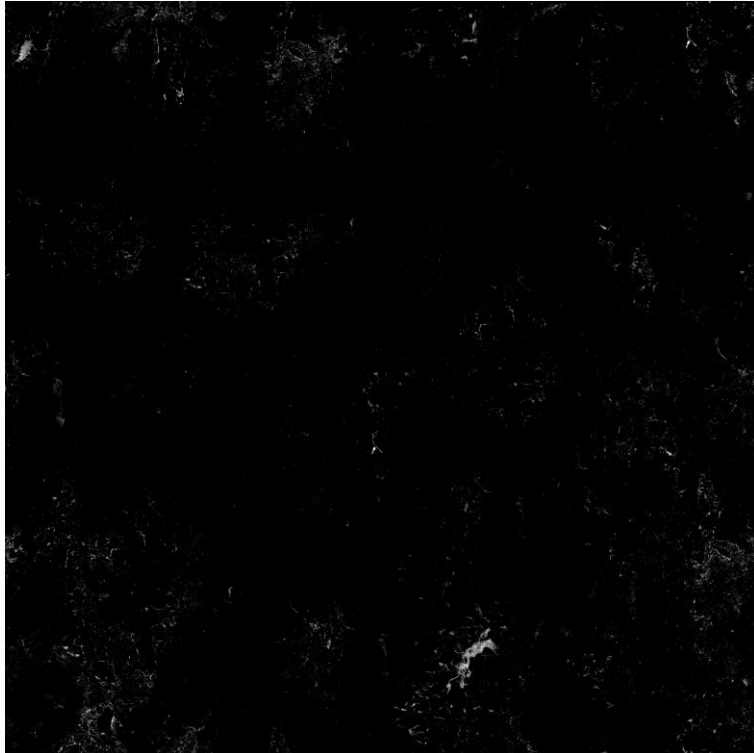


Diffuse map



A diffuse shader determines, simply speaking, the general color of a material when light shines on it.

Specular map



Specular maps create the bright highlights that one would see on a glossy surface, mimicking the reflection of light sources

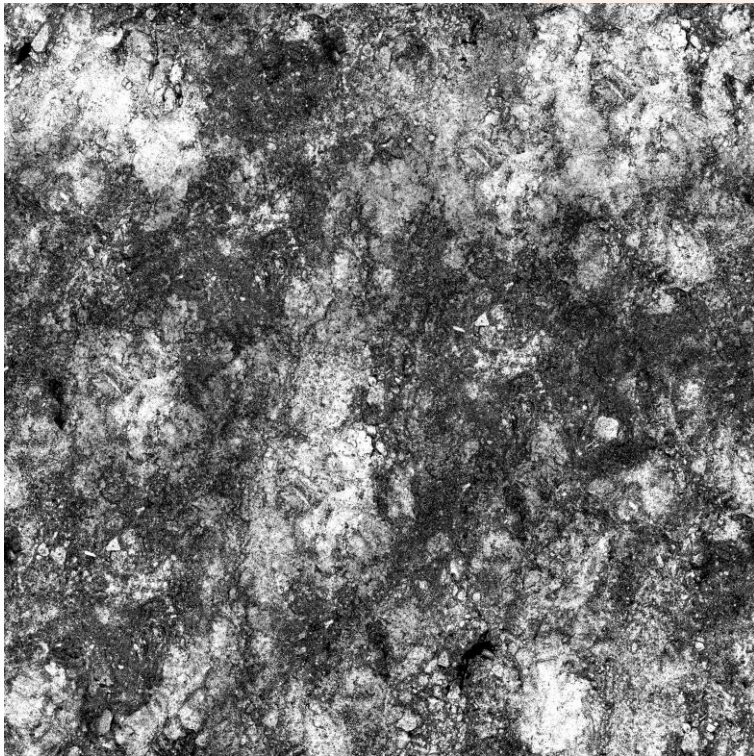
Roughness map



Describes the microsurface of the object. White 1.0 is rough and black 0.0 is smooth. The microsurface if rough can cause the light rays to scatter and make the highlight appear dimmer and more broad.

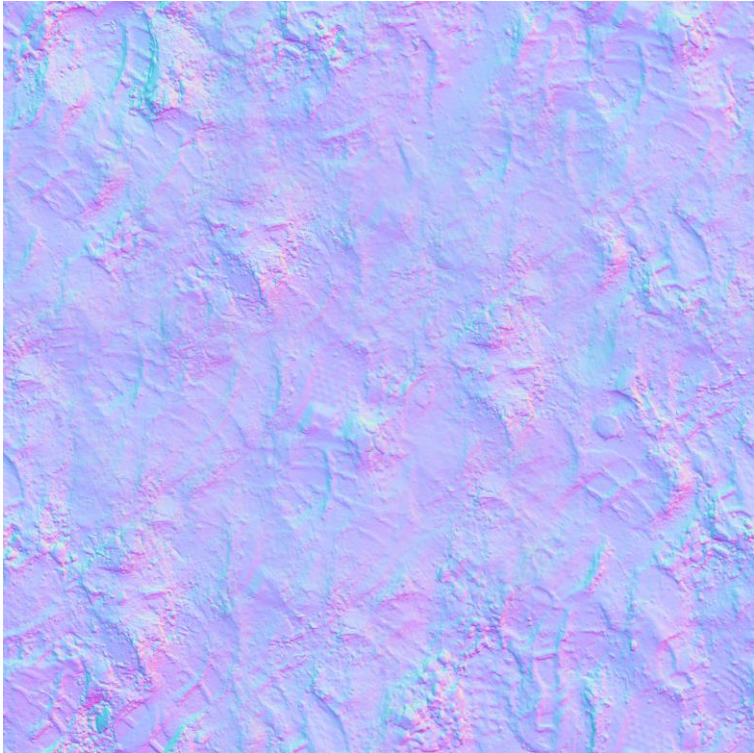
The same amount of light energy is reflected going out as coming into the surface.

Bump map



Bump maps are textures that store an intensity, the relative height of pixels from the viewpoint of the camera. The pixels seem to be moved by the required distance in the direction of the face normals.

Normal map



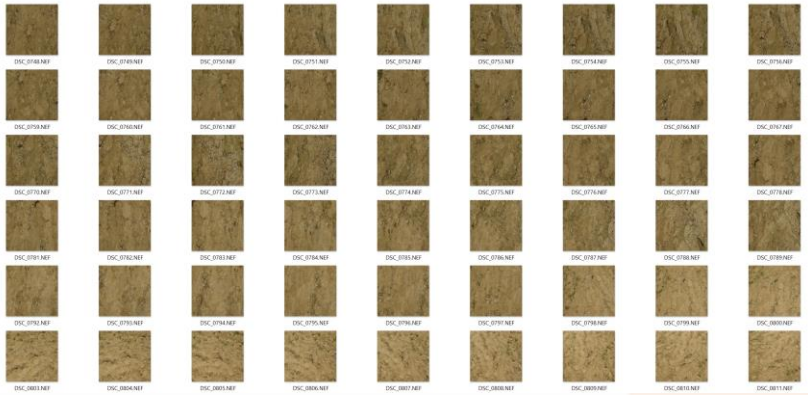
Normal Mapping in 3D graphics development is the process of using an RGB color-map to create a three-dimensional relief on a two-dimensional plane.

Displacement map

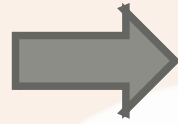


Displacement mapping allows a texture input to manipulate the position of vertices on rendered geometry. Unlike Normal or Bump mapping, where the shading is distorted to give an illusion of a bump (discussed on the previous page), Displacement Maps create real bumps, creases, ridges, etc. in the actual mesh

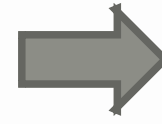
Extracting the maps from photos



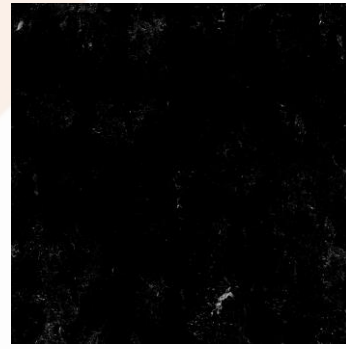
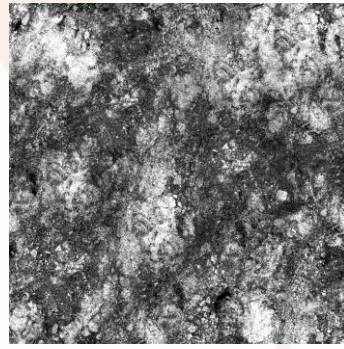
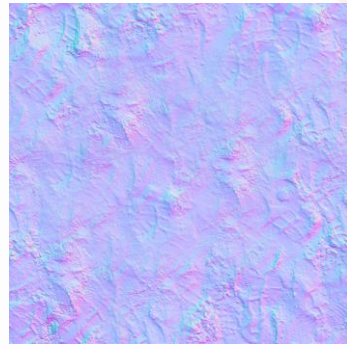
Making photos from surface



Make 3D scan



Baking texture maps



PBR workflow

Physically based rendering (PBR) refers to the concept of using realistic shading/lighting models along with measured surface values to accurately represent real-world materials.

PBR is more of a concept than a strict set of rules, and as such, the exact implementations of PBR systems tend to vary. However, as every PBR system is based on the same principal idea (render stuff as accurately as possible) many concepts will transfer easily from project to project or engine to engine. Blender has his own way of creating the PBR look. In 2.79 the principled shader was introduced. A user friendly way of making realistic looking materials

